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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/596,700	06/19/2000	Marcia R. Brumitt	4246 P	5438

7590 03/10/2004

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EXAMINER

LEE, PING

ART UNIT	PAPER NUMBER
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2644

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DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/596,700

Applicant(s)

BRUMITT ET AL.

Examiner

Ping Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☒ Interview Summary (PTO-413) Paper No(s). 3.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-14, drawn to a method for reducing unwanted noise is a communication signal using temporally smoothing and transversally smoothing, classified in class 381, subclass 94.1.
 - II. Claims 15-16, drawn to a system for reducing unwanted noise in a communication system comprising a telephone, classified in class 379, subclass 390.01.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the noise reducing adapter in a telephone could use a different noise attenuating method and have circuitry regarding echo cancellation. The subcombination has separate utility such as attenuation noise for a live speech signal.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Mr. Sadler on 3/2/04 a provisional election was made with traverse to prosecute the invention of group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15 and 16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-3, and 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickopp et al (US 5,179,623) in view of Marash et al (US 6,363,345).

Regarding claims 1, 3, and 8-13, Dickopp et al (hereafter Dickopp) shows the step of receiving digital input stream (from 1), pre-emphasizing (2), concatenating (3), windowing (4), transforming data into frequency domain (6), calculating a power estimate (abstract), weighting frequency value (35), inverse transforming (10), inverse windowing (11), deemphasizing (14) and generating a digital output stream (to 15).

Dickopp discloses the claimed invention with the exception of storing the data in a buffer and temporally smoothing and transversally smoothing.

Although Dickopp fails to explicitly show a buffer, it was well known to those in the art that it was necessary to have buffer for storing the digital data after pre-emphasizing before the data is being shifted for the next step of processing. In fact, every processing step performed in digital signal processing requires a buffer for storing the result. Thus, it would have been obvious to one of ordinary skill in the art to include a buffer for Dickopp's system in order to store the data after pre-emphasizing.

Marash et al (hereafter Marash) teaches how to accurately estimate the power of the noise component by performing the average on the neighboring bins (similar to step I) and then performing the average over frames (similar to step H). Although Marash's smoothing is being performed in a different order as claimed, one skilled in the art would have expected that a similar outcome would result. Thus, it would have been obvious to one of ordinary skill in the art to modify Dickopp's processing in view of Marash by temporally smoothing the power estimate and transversally smoothing the smoothed data in order to accurately estimate the strength of the noise regardless of the instability.

Regarding claim 2, Dickopp fails to show that the original data is from a cellular telephone. However, Dickopp teaches that the process could be used for an audio in radio transmission. It was well known in the art that the cellular telephone utilizes radio transmission and the cellular telephone picking up a lot of noise. Thus, it would have been obvious to one of ordinary skill in the art to utilize Dickopp's process to process

the audio signal from a cellular telephone because it was considered as a matter of engineering design choice to use Dickopp's process on a specific application.

Regarding claim 5, Dickopp shows the Hanning window (claim 3).

Regarding claim 6, although neither Dickopp nor Marash shows a rectangular window, such window function is a functionally equivalent of Hanning window. Thus, it would have been obvious to one of ordinary skill in the art to modify Dickopp in view of Marash by using any functionally equivalent window, such as rectangular window because it was considered as a matter of design choice.

Regarding claims 7 and 14, Marash shows the FFT.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dickopp in view of Marash as claims 1-3, and 5-14 above, and further in view of Pawate et al (US 5,749,064).

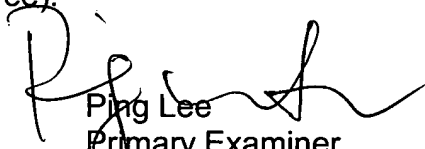
The system of Dickopp in view of Marash is discussed above. Regarding claim 4, neither Dickopp nor Marash shows the frame overlapping. Pawate et al (hereafter Pawate) teaches a method of concatenating the data and how to maintain its pitch and tempo after resampling (col. 2, lines 1-12). Thus, it would have been obvious to one of ordinary skill in the art to further modify Dickopp in view of Marash by modifying the time scales of the digital input data using the method as taught in Pawate in order to maintain the original tempo and pitch without generating the noise.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 703-305-4865. The examiner can normally be reached on Monday and Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ping Lee
Primary Examiner
Art Unit 2644

pwl